NOAA/ NASA Joint Call for Proposals addressing science issues in the GEWEX Continental Scale International Project (GCIP) and Interdisciplinary Studies in the Global Energy and Water Cycle Experiment (GEWEX) context.

NOAA/NASA Research Announcement
Issued April 14, 1997
Letters of Intent due April 30, 1997
Proposals due May 30, 1997

GCIP Project Office
NOAA Office of Global Programs
Silver Spring, MD 20910

and

Mission to Planet Earth
National Aeronautics and Space Administration
Washington, DC 20546

INTRODUCTION:

NOAA and NASA are pleased to announce a joint initiative to address priority problems in the GEWEX Continental Scale International Project (GCIP) as well as in establishing intra-continental-scale links within the Global Energy and Water Cycle Experiment (GEWEX) . This call is aimed at fostering work that supports the objectives of the GEWEX with the prime focus on the GCIP activity in the Mississippi River Basin. NASA is also interested in addressing issues associated with moving from individual continental scale experiments toward a global synthesis of the continental scale approaches. Together, NOAA and NASA are planning to fund approximately a total of 25 proposals from this announcement. Proposals for 3 years duration (or less) are being invited.

Proposals are solicited for two categories of research. 1) Proposals that focus on the designated areas of the Mississippi River Basin (NOAA and NASA plan to fund a total of approximately 15 proposals in this catagory). 2) Proposals directed toward interdisciplinary studies with an emphasis on continental-scale land-atmosphere interaction in the GEWEX (or global, not restricted to Mississippi) context (NASA plans to fund approximately 10 proposals in this catagory).

The GEWEX Continental-scale International Project (GCIP) is a multi-scale hydrometeorological project which focuses on the Mississippi River Basin. The first phase of the project extends from 1995 to 2000. The strategic mission for GCIP is to demonstrate skill in predicting changes in water resources on time scales up to seasonal, annual and interannual as a integral part of a climate prediction system. Projects that are likely to receive favorable attention are those which address the inclusion of satellite data into the GCIP program and those which bring innovative approaches to advance issues currently being addressed and to identified gaps in the current program. To date, GCIP's successes have included: 1) the determination of the limitations in different data sources that will be useful in closing regional water balances; (2) the development of models that provide improved representation of land atmosphere interactions in coupled models; (3) the implementation of initiatives that effectively deal with the collection, access and processing of in-situ data describing the land surface characteristics, and (4) the implementation of a system for producing, archiving and distributing daily high resolution data assimilation outputs from three regional mesoscale models for the period 1996 to 2000. GCIP is also seeking projects that advance the new scientific areas identified in its Implementation Plan (IGPO, 1994) and its Major Activities Plan for 1997,1998 and Outlook for 1999 (IGPO Publication Series No. 25).

The GCIP strategy has involved an overall focus on different regions within the basin as different processes are studied. To date, research has been concentrated on warm season hydrometeorological processes in the Southwest region of the Mississippi Basin using in-situ data. Within the three year time frame covered by this call GCIP will be encouraging new initiatives related to cold season processes in the North Central part of the basin (FY97, FY98), and new initiatives for the East part of the basin (FY 98, FY 99) where vegetation, orography and runoff are important aspects of the physical climate system.

Projects leading to the implementation of a substantial program in the Northwestern part of the basin will also be considered. As indicated below, this call welcomes proposals for studies of the basin as a whole as well as research studies using the extensive data sets that have already been developed for the Southwest.

Successful new GCIP initiatives will contribute to meeting one or more of its five objectives namely understanding energy and water budgets at different scales; coupled land- atmosphere modeling; the preparation, validation and use of data assimilation products; the strengthening of GCIP data facilities through data collection and data management activities; and the application of GCIP models and understanding to the water resource management community. These objectives are described in the following paragraphs.

Several issues are not explicit in the preceeding objectives but permeate many aspects of GCIP. These include scaling issues and the question of the transferability of results from one region to another. Scaling affects the ability to interpret field data measured locally in the context of conditions over a range of spatial scales and the transfer of model physics from high resolution mesoscale models to low resolution climate models. Also included are the issues of techniques for rainfall disagregation that make use of either climatological or instantaneous satellite data for hydrological applications. It also affects scale mismatches in time and space that exist between atmospheric and basin scale hydrologic models.

The transferability of model results from one climate regime to another is important both for studies within the Mississippi River Basin and for making the results of GCIP more universally applicable within the GEWEX program. GCIP is one of five continental-scale experiments being carried out under the auspices of the Global and Energy Water Cycle Experiment (GEWEX). Consequently, it is important for GCIP to ensure that its results can be transferred to other parts of the world. GCIP plans to make more extensive use of remotely sensed data for this purpose as it develops links with other continental-scale experiments where data are sparse.

WATER AND ENERGY BUDGETS

A key objective of the GCIP program is to determine and explain the seasonal, annual, interannual and spatial variability of water and energy cycles in the Mississippi River Basin. Research addressing this objective has focused on the water cycle in the Mississippi River Basin on different spatial and temporal scales based on the use of conventional radiosonde data and theoutputs from both regional and global scale models. It is clear from these studies that models and observations will have to be used in combination to specify energy and water budgets with the level of accuracy needed to provide model validation data sets. In addition, research on specific water budget components are needed to improve their estimates in certain regions and seasons.

COUPLED LAND-ATMOSPHERE MODELS

GCIP research continues to contribute to the convergence of distributed hydrological models and land surface schemes, and has led to improved representations of hydrologic and vegetative processes in models. A 1996 coupled modeling workshop report (Shuttleworth, 1996) details three areas where further development work is needed to improve these models. Research opportunities include the better representation of the following processes in coupled models; 1) precipitation, its sub-grid scale variability and its distribution over time and space; 2) the effects of evolving soil moisture fields, and 3) the phenology of the annual cycle of vegetation and its spatial and interannual variability.

DATA ASSIMILATION.

GCIP also develops and evaluates atmospheric, land and coupled data assimilation schemes that incorporate both remote and in-situ observations. GCIP already has an extensive data assimilation model output data set available with outputs from three operational mesoscale models beginning in May 1996. Initiatives are needed to assess the outputs of these models and to determine the extent to which other types of measurements (particularly satellite measurements) could be used to improve them.

DATA ACQUISITION AND MANAGEMENT

Although GCIP has undertaken the limited collection of special data sets to support process and model validation studies, generally the project has relied upon existing data sets. New data-related initiatives will need to have a strong scientific component and lead to advances such as the development of algorithms to provide GCIP-related land surface information, precipitation and streamflow characteristics.

WATER RESOURCE APPLICATIONS

This area of opportunity is an emerging priority for GCIP. Advances are needed in the application of coupled atmospheric-hydrologic models and the assessment of the utility of climate forecasts in water resource management. Proposals for demonstration projects showing how water resource managers can benefit by utilizing GCIP models, remote sensing data and climate predictions are encouraged. GCIP is particularly interested in supporting proposals that offer opportunities for demonstration projects showing the value of assimilated in-situ and satellite data products and models in an operational water resource management setting.

REMOTE SENSING EMPHASIS

Satellite remote sensing as well as aircraft and surface based remote sensing applications need to be strengthened in GCIP, especially as enhanced observing periods occur in the more data sparse regions of the Mississippi River Basin. Such contributions are particularly important for determining and explaining the temporal (seasonal to interannual) and spatial variability of the energy and water cycles in the Mississippi River Basin, and in developing and evaluating coupled land surface/atmospheric models at resolutions appropriate to large scale continental basins. The potential contributions of remote sensing

techniques as a means to initially transfer results from data rich parts of the Mississippi River Basin to data sparse areas within the Basin and eventually from the Mississippi River Basin to other parts of the world should be explored. Recognition of the potential for the next generation satellite remote sensing data (e.g. Data from the Earth Observing System AM Platform, the New Millennium Program and the Earth System Science Pathfinder Program) in combination with existing satellite remote sensing data bases is encouraged.

RESEARCH TOPICS COVERED IN THIS CALL

Research resulting from this announcement will accelerate the development of climate prediction techniques within the context of an "end-to-end" GEWEX in general, and GCIP specifically. GCIP will continue to focus on the development of improved coupled land atmosphere modules for use in climate models; a better understanding and quantitative description of energy and water cycles for the Mississippi River Basin at all appropriate time and space scales; the development of improved data assimilation system outputs and better interpretations of climate predictions for water resource management applications. Since most prediction systems fail to perform optimally due to inadequate representations of important physical processes, studies that examine individual hydroclimatological processes are needed. Specific gaps that need to be addressed within this call include the incorporation of cold season processes into land surface schemes, improvements to coupled modeling through the better representation of land surface characteristics, interactive nested regional and global models and improved hydrological models.

Central to this announcement are GCIP plans to address these priorities in the context of the planned studies of selected portions of the basin (i.e. focus on studies in the LSA-NC in the 1997-1998 time frame and focus on LSA-E in the 1998-1999 time frame). In addition, GCIP retains an interest in modeling warm season precipitation, particularly in conjunction with the Pan-American Climate Studies (PACS) Program. This announcement also solicits investigations that focus on using coupled land atmosphere hydrological models and remote sensing observations to address intra continental scale scientific objectives towards the ultimate goal of developing coupled global hydrological models that properly represent land-surface hydrological processes and land-atmosphere interactions.

In addition to the traditional GCIP approaches carried out in the past, this announcement encourages new initiatives addressing components of the atmospheric and surface energy budgets through the use of remote sensing data. The development of techniques for blending remote sensing data with conventional data to produce best estimates of the spatial and temporal distributions of precipitation, soil moisture and vegetation and other surface hydrology components are of particular importance for determining fluxes of water in the atmosphere and in the regional hydrology.

The development of techniques and algorithms for use in the derivation of parameters describing land surface conditions from satellite data, and the development of procedures for extending them from data rich to data sparse areas are also encouraged. GCIP would benefit from projects involving the use of satellite data for model initialization and validation and the development of interactive nested models to link regional and global scale models on weather and climate time scales. Techniques for assimilating satellite data into regional models are also of interest.

This call also encourages projects that use remote sensing data to enhance the contributions of coupled regional hydrometeorological models to water resource planning and management, as well as to establish links between regional and existing global models which can then be used to address issues such as inter-annual variability and regional water resource assessments.

HOW TO APPLY:

Those interested in submitting proposals to this call are encouraged to submit a letter of intent to Ms. Adrienne Calhoun, GCIP Project Office, Office of Global Programs, National Oceanic and Atmospheric Administration, Suite 1225, 1100 Wayne Ave., Silver Spring, MD 20910. The letter of intent should clearly state at the outset whether the proposal will address Category 1 or Category 2. This letter should be no more than two pages in length . It should give the proposed title; describe the project that will be proposed, including the scientific goals of the research, and the strategy, and address how the proposal relates to the priorities and goals outlined in the preceding paragraphs. It is requested that the letter of intent reach the GCIP Project office no later than 30 April 1997. Facsimile and electronic mail are acceptable for letters of intent and will receive a response indicating that a full proposal is encouraged or not encouraged. The response letter will also indicate if there is a preference which agency would be best suited to fund the proposed research if it is a Category 1 proposal. In Category 1, NASA is specifically seeking proposals which make use of remotely sensed data (Satellite, Aircraft, Surface based) through data infusion, model development, or understanding of processes which address issues of the GCIP Project. Proposal instructions for proposals to be funded by NOAA are found in Appendix A. Proposal Instructions for proposals to be funded by NASA are found in appendices B & C.

Full proposals that address Category 1 (Proposals that focus on the designated areas of the Mississippi River Basin), regardless of which agency may fund the proposal, must be received at the GCIP Project office not later than close of business on 30 May 1997.

Full proposals that address Category 2 (Proposals which are directed toward interdisciplinary studies with emphasis on continental-scale land-atmosphere interaction in the GEWEX context, global - not restricted to the Mississippi Basin) must be received at NASA not later than the close of business on 30 May 1997.

Questions regarding this announcement can be directed to either Dr. Rick Lawford, GCIP Project Manager, Office of Global Programs, National Oceanic and Atmospheric Administration, 1100 Wayne Ave., Silver Spring, MD Tel. (301) 427 2089 Ext. 40; Fax: (301) 427-2222 or lawford@ogp.noaa.gov. or Dr. James Arnold, Science Division, Mission to Planet Earth, NASA Headquarters, Code YS, 300 E. Street SW, Washington DC, USA 20546, Tel 202 358 0540; Fax 2770 or jim.arnold@hq.nasa.gov.

References:

GCIP Studies in the Large Scale Study Area (LSA) East (1997-98)
http://wwwghcc.msfc.nasa.gov/gcip/

International GEWEX Project Office, 1994: Implementation Plan for the GEWEX Continental-scale International Project (GCIP), Vol.II, Research. International Project Office, Washington, DC.

Leese, J., 1996: Major Activities Plan for 1997,1998, and Outlook for 1999 for the GEWEX Continental-Scale International Project (GCIP), Part 1, Research, IGPO Publication Series No. 25, Silver Spring, MD.

Shuttleworth, J. 1996. GCIP Coupled Modeling Workshop, IGPO publication Series No. 23, Silver Spring, MD, 20 pp. Plus App.

Appendix A

Full Proposals Submitted to NOAA

Eligibility: Extramural eligibility is not limited and is encouraged with the objective of developing a strong partnership with the academic community. Non-academic proposers are urged to seek collaboration with academic institutions. Universities, non-profit organizations, for profit organizations, State and local governments, and Indian Tribes, are included among entities eligible for funding under this announcement.

The NOAA Climate and Global Change Program has been approved for multi-year funding up to a three year duration. Funding for non-U.S. institutions is not available under this announcement.

Criteria for Evaluation: Consideration for financial assistance will be given to those proposals which address the Program Priorities listed above and meet the following evaluation criteria:

(1.)Scientific Merit (20%): Intrinsic scientific value of the subject and the study proposed.

(2.) Relevance (20%): Importance and relevance to the goal of the Climate and Global Change Program and to the research areas listed above.

(3.) Methodology (20%): Focused scientific objective and strategy, including measurement strategies and data management considerations; project milestones; and final products.

(4.) Readiness (20%): Nature of the problem; relevant history and status of existing work; level of planning, including existence of supporting documents; strength of proposed scientific and management team; past performance record of proposers.

(5.)Linkages (10%): Connections to existing or planned national and international programs; partnerships with other agency or NOAA participants, where appropriate.

(6.)Costs (10%): Adequacy of proposed resources; appropriate share of total available resources; prospects for joint funding; identification of long-term commitments. (Matching funding is encouraged, but is not required.)

Selection Procedures: All proposals will be evaluated and ranked in accordance with the assigned weights of the above evaluation criteria by (1) independent peer mail review, and/or (2) independent peer panel review; both NOAA and non-NOAA experts in the field may be used in this process. Their recommendations and evaluations will be considered by the Program Manager/Officer in final selections. Those ranked by the panel and program as not recommended for funding will not be given further consideration and will be notified of non-selection. For the proposals rated either Excellent, Very Good or Good, the Program Manager will: (a) ascertain which proposals meet the objectives, fit the criteria posted, and do not substantially duplicate other projects that are currently funded by NOAA or are approved for funding by other federal agencies (b) select the proposals to be funded, (c) determine the total duration of funding for each proposal, and (d) determine the amount of funds available for each proposal. Awards are not necessarily made to the highest-scored proposals. Unsatisfactory performance by a recipient under prior Federal awards may result in an application not being considered for funding.

Proposal Submission: The guidelines for proposal preparation provided below are mandatory. Failure to follow these guidelines may result in proposals being returned without review.

(b) Full Proposals: (1) Proposals submitted to the NOAA Climate and Global Change Program must include the original and two unbound copies of the proposal. (2) Investigators are not required to submit more than 3 copies of the proposal, however, the normal review process requires 20 copies. Investigators are encouraged to submit sufficient proposal copies for the full review process if they wish all reviewers to receive color, unusually sized (not 8.5x11"), or otherwise unusual materials submitted as part of the proposal. Only three copies of the Federally required forms are needed. (3) Proposals must be limited to 30 pages (numbered), including budget, investigators vitae, and all appendices, and should be limited to funding requests for one to three year duration. Appended information may not be used to circumvent the page length limit. Federally mandated forms are not included within the page count. (4) Proposals should be sent to the NOAA Office of Global Programs at the above address. (5) Facsimile transmissions and electronic mail submission of full proposals will not be accepted.

(c) Required Elements: All proposals should include the following elements:

(1.) Signed title page: The title page should be signed by the Principal Investigator (PI) and the institutional representative and should clearly indicate which project area is being addressed. The PI and institutional representative should be identified by full name, title, organization, telephone number and address. The total amount of Federal funds being requested should be listed for each budget period.

(2.) Abstract: An abstract must be included and should contain an introduction of the problem, rationale and a brief summary of work to be completed. The abstract should appear on a separate page, headed with the proposal title, institution(s) investigator(s), total proposed cost and budget period.

(3.) Results from prior research The results of related projects supported by NOAA and other agencies should be described, including their relation to the currently proposed work. Reference to each prior research award should include the title, agency, award number, PIs, period of award and total award. The section should be a brief summary and should not exceed two pages total.

(4.) Statement of work: The proposed project must be completely described, including identification of the problem, scientific objectives, proposed methodology, relevance to the goal of the Climate and Global Change Program, and the program priorities listed above. Benefits of the proposed project to the general public and the scientific community should be discussed. A year-by-year summary of proposed work must be included clearly indicating that each year's proposed work is severable and can easily be separated into annual increments of meaningful work. The statement of work, including references but excluding figures and other visual materials, must not exceed 15 pages of text. Investigators wishing to submit group proposals that exceed the 15 page limit should discuss this possibility with the GCIP Project Manager prior to submission. In general, proposals from 3 or more investigators may include a statement of work containing up to 15 pages of overall project description plus up to 5 additional pages for individual project descriptions.

(5.) Budget: Applicants must submit an a Standard Form 424 (4-92) "Application for Federal Assistance", including a detailed budget using the Standard Form 424a (4 - 92), "Budget Information -- Non-Construction Programs". The form is included in the standard NOAA application kit. The proposal must include total and annual budgets corresponding with the descriptions provided in the statement of work. Additional text to justify expenses should be included as necessary.

(6.) Vitae: Abbreviated curriculum vitae are sought with each proposal. Reference lists should be limited to all publications in the last three years with up to five other relevant papers.

(7.) Current and pending support: For each investigator, submit a list that includes project title, supporting agency with grant number, investigator months, dollar value and duration. Requested values should be listed for pending support.

(8.) List of suggested reviewers: The cover letter may include a list of individuals qualified and suggested to review the proposal. It also may include a list of individuals that applicants would prefer to not review the proposal. Such lists may be considered at the discretion of the GCIP Project Manager.

(d.) Other requirements:

(1.) Applicants may obtain a standard NOAA application kit from the GCIP Project Office.

Primary applicant Certification - All primary applicants must submit a completed Form CD-511, "Certification Regarding Debarment, Suspension and Other Responsibility Matters; Drug-Free Workplace Requirements and Lobbying". Applicants are also hereby notified of the following:

1. Nonprocurement Debarment and Suspension - Prospective participants (as defined at 15 CFR Part 26, section 105) are subject to 15 CFR Part 26, "Nonprocurement Debarment and Suspension," and the related section of the certification form prescribed above applies;

2. Drug Free Workplace - Grantees (as defined at 15 CFR part 26, section 605) are subject to 15 CFR Part 26, Subpart F, "Governmentwide Requirements for Drug-Free Workplace (Grants)" and the related section of the certification form prescribed above applies;

3. Anti-Lobbying - Persons (as defined at 15 CFR Part 28, section 105) are subject to the lobbying provisions of 31 U.S.C. 1352, "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions", and the lobbying section of the certification form prescribed above applies to applications/bids for grants, cooperative agreements, and contracts for more than $100,000, and loans and loan guarantees for more than $150,000, or the single family maximum mortgage limit for affected programs, whichever is greater; and

4. Anti-Lobbying Disclosures - Any applicant that has paid or will pay for lobbying using any funds must submit an SF-LLL, "Disclosure of Lobbying Activities," as required under 15CFR part 28, appendix B.

Lower Tier Certifications - Recipients must require applicants/bidders for subgrants, contracts, subcontracts, or lower tier covered transactions at any tier under the award to submit, if applicable, a completed Form CD-512, "Certifications Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions and Lobbying" and disclosure form SF-LLL, "Disclosure of Lobbying Activities." Form CD-512 is intended for the use of recipients and should not be transmitted to DOC. SF-LLL submitted by any tier recipient or subrecipient should be submitted to DOC in accordance with the instructions contained in the award document.

(2.) Recipients and subrecipients are subject to all applicable Federal laws and Federal and Department of Commerce policies, regulations, and procedures applicable to Federal financial assistance awards.

(3.) Preaward Activities - If applicants incur any costs prior to an award being made, they do so solely at their own risk of not being reimbursed by the Government. Notwithstanding any verbal assurance that may have been received, there is no obligation to the applicant on the part of Department of Commerce to cover pre-award costs.

(4.) This program is subject to the requirements of OMB Circular No. A-110, "Uniform Administrative Requirements for Grants and Other Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations", and 15 CFR Part 24, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments", as applicable. Applications under this program are not subject to Executive Order 12372, "Intergovernmental Review of Federal Programs."

(5.) All non-profit and for-profit applicants are subject to a name check review process. Name checks are intended to reveal if any key individuals associated with the applicant have been convicted of, or are presently facing criminal charges such as fraud, theft, perjury, or other matters which significantly reflect on the applicant's management, honesty, or financial integrity.

(6.) A false statement on an application is grounds for denial or termination of funds and grounds for possible punishment by a fine or imprisonment as provided in 18 U.S.C. 1001.

(7.) No award of Federal funds shall be made to an applicant who has an outstanding delinquent Federal debt until either:
(i) The delinquent account is paid in full,
(ii) A negotiated repayment schedule is established and at least one payment is received, or
(iii) Other arrangements satisfactory to the Department of Commerce are made.

(8.) Buy American-Made Equipment or Products - Applicants are encouraged that any equipment or products authorized to be purchased with funding provided under this program must be American-made to the maximum extent feasible.

(9.) The total dollar amount of the indirect costs proposed in an application under this program must not exceed the indirect cost rate negotiated and approved by a cognizant Federal agency prior to the proposed effective date of the award or 100 percent of the total proposed direct cost dollar amount in the application, whichever is less.

(e.) If an application is selected for funding, the Department of Commerce has no obligation to provide any additional future funding in connection with the award. Renewal of an award to increase funding or extend the period of performance is at the total discretion of the Department of Commerce.

(f.) In accordance with Federal statutes and regulations, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, denied benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from the NOAA Climate and Global Change Program. The NOAA Climate and Global Change Program does not have direct TDD (Telephonic Device for the

Deaf) capabilities, but can be reached through the State of Maryland supplied TDD contact number, 800-735-2258, between the hours of 8:00 am - 4:30 pm.

Appendix B

Full Proposals Submitted to NASA

INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS (JANUARY 1997)

(a) General.

(1) Proposals received in response to a NASA Research Announcement (NRA) will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a pre-award synopsis published for individual proposals.

(2) A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

(3) NRAs contain programmatic information and certain requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRAs.

(4) A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded in response to an NRA. NASA will determine the appropriate instrument. Contracts resulting from NRAs are subject to the Federal Acquisition Regulation and the NASA FAR Supplement. Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NPG 5800.1).

(5) NASA does not have mandatory forms or formats for responses to NRAs; however, it is requested that proposals conform to the guidelines in these instructions. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.

(6) To be considered for award, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation.

(b) NRA-Specific Items. Several proposal submission items appear in the NRA itself: the unique NRA identifier; when to submit proposals; where to send proposals; number of copies required; and sources for more information. Items included in these instructions may be supplemented by the NRA.

(c) The following information is needed to permit consideration in an objective manner. NRAs will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

(1) Transmittal Letter or Prefatory Material.

(i) The legal name and address of the organization and specific division or campus identification if part of a larger organization;

(ii) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;

(iii) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;

(iv) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;

(v) Identification of other organizations that are currently evaluating a proposal for the same efforts;

(vi) Identification of the NRA, by number and title, to which the proposal is responding;

(vii) Dollar amount requested, desired starting date, and duration of project;

(viii) Date of submission; and

(ix) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

(2) Restriction on Use and Disclosure of Proposal Information. Information contained in proposals is used for evaluation purposes only. Offerors or quoters should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following notice on the title page of the proposal and specify the information subject to the notice by inserting an appropriate identification in the notice. In any event,

information contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice.

Notice

Restriction on Use and Disclosure of Proposal Information

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract (or other agreement) is awarded on the basis of this proposal the Government shall have the right to use and disclose this information (data) to the extent provided in the contract (or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

(3) Abstract. Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective and the method of approach.

(4) Project Description.

(i) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance; relation to the present state of knowledge; and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the plan of work, including the broad design of experiments to be undertaken and a description of experimental methods and procedures. The project description should address the evaluation factors in these instructions and any specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Subcontracting significant portions of a research project is discouraged.

(ii) When it is expected that the effort will require more than one year, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

(5) Management Approach. For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described.

(6) Personnel. The principal investigator is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. A short biographical sketch of the principal investigator, a list of principal publications and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the names and

titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants, together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

(7) Facilities and Equipment.

(i) Describe available facilities and major items of equipment especially adapted or suited to the proposed project, and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use. Include evidence of its availability and the cognizant Government points of contact.

(ii) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for research and non-research purposes should be explained.

(8) Proposed Costs.

(i) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages; fringe benefits; equipment; expendable materials and supplies; services; domestic and foreign travel; ADP expenses; publication or page charges; consultants; subcontracts; other miscellaneous identifiable direct costs; and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other non-professional personnel). Estimate all staffing data in terms of staff-months or fractions of full-time.

(ii) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired; purpose and estimated number and lengths of trips planned; basis for indirect cost computation (including date of most recent negotiation and cognizant agency); and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases.

(iii) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 1831 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

(9) Security. Proposals should not contain security classified material. If the research requires access to or may generate security classified information, the submitter will be required to comply with Government security regulations.

(10) Current Support. For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

(11) Special Matters.

(i) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(ii) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

(d) Renewal Proposals

(1) Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. A renewal proposal should not repeat all of the information that was in the original proposal. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposal should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

(2) NASA may renew an effort either through amendment of an existing contract or by a new award.

(e) Length. Unless otherwise specified in the NRA, effort should be made to keep proposals as brief as possible, concentrating on substantive material. Few proposals need exceed 15-20 pages. Necessary detailed information, such as reprints, should be included as attachments. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments.

(f) Joint Proposals.

(1) Where multiple organizations are involved, the proposal may be submitted by only one of them. It should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

(2) Where a project of a cooperative nature with NASA is contemplated, describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. The proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

(g) Late Proposals. A proposal or modification received after the date or dates specified in an NRA may be considered if doing so is in the best interests of the Government.

(h) Withdrawal. Proposals may be withdrawn by the proposer at any time before award. Offerors are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

(i) Evaluation Factors

(1) Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

(2) Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

(3) Evaluation of its intrinsic merit includes the consideration of the following factors of equal importance:

(i) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal.

(ii) Offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.

(iii) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel critical in achieving the proposal objectives.

(iv) Overall standing among similar proposals and/or evaluation against the state-of-the-art.

(4) Evaluation of the cost of a proposed effort may include the realism and reasonableness of the proposed cost and available funds.

(j) Evaluation Techniques. Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house, others are evaluated by a combination of in-house and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. The final decisions are made by a NASA selecting official. A proposal which is scientifically and programmatically meritorious, but not selected for award during its initial review, may be included in subsequent reviews unless the proposer requests otherwise.

(k) Selection for Award.

(1) When a proposal is not selected for award, the proposer will be notified. NASA will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

(2) When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for

negotiation. The contracting officer may request certain business data and may forward a model award instrument and other information pertinent to negotiation.

(l) Cancellation of NRA. NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation.

(End of provision)

Appendix C

GUIDELINES FOR FOREIGN PARTICIPATION

NASA accepts proposals from entities located outside the U.S. in response to this NRA. Proposals from non-U.S. entities should not include a cost plan. Non-U.S. proposals, and U.S. Proposals that include non-U.S. participation, must be endorsed by the respective government agency or funding/sponsoring institution in the country from which the non-U.S. participant is proposing. Such endorsement should indicate the following points: (1) The proposal merits careful consideration by NASA; and (2) If the proposal is selected, sufficient funds will be made available by the sponsoring foreign agency to undertake the activity as proposed.

Proposals, along with the requested number of copies and Letter of Endorsement must be forwarded to NASA in time to arrive before the deadline established for this NRA. In addition, one copy of each of these documents should be sent to:

NASA Headquarters
Office of External Relations
Mission to Planet Earth Division, Code IY
Washington, DC 20546
USA

Any materials sent by courier or express mail should include the street address 300 E Street, S. W., and substitute 20024 for the indicated ZIP code.

All proposals must be typewritten in English. All non-U.S. proposals will undergo the same evaluation and selection process as those originating in the U.S. Non-U.S. proposals and U. S. Proposals that include non-U.S. participation, must follow all other guidelines and requirements described in this NRA. Sponsoring non-U.S. agencies may, in exceptional situations, forward a proposal without endorsement to the above address, if review and endorsement are not possible before the announced closing date. In such cases, however, NASA's Mission to Planet Earth Division of the Office of External Relations should be advised when a decision on the endorsement is to be expected.

Successful and unsuccessful proposers will be contacted directly by the NASA Program Office coordinating the NRA. Copes of these letters will be sent to the sponsoring government agency.

Appendix D

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters
Primary Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211). Copies of the regulation may be obtained by contracting the U.S. Department of Education, Grants and Contracts Service, 400 Maryland Avenue, S.W. (Room 3633 GSA Regional Office Building No. 3), Washington, DC. 20202-4725, telephone (202) 732-2505.

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statues or commission of embezzlement theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization Name PR/Award Number or Project Name

Name and Title of Authorized Representative

Signature Date

ED Form GCS-008 (REV.12/88)

Appendix D

Certification Regarding Drug-Free Workplace Requirements
Grantees Other Than Individuals

This certification is required by the regulations implementing the Drug-Free Workplace Act of 1988, 34 CFR Part 85, Subpart F. The regulations, published in the January 31, 1989 Federal Register, require certification by grantees, prior to award, that they will maintain a drug-free workplace. The certification set out below is a material representation of fact upon which reliance will be placed when the agency determines to award the grant. False certification or violation of the certification shall be grounds for suspension of payments, suspension or termination of grants, or governmentwide suspension or debarment (see 34 CFR Part 85, Sections 85.615 and 85.620).

This grantee certifies that it will provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing a drug-free awareness program to inform employees about -

(1) The dangers of drug abuse in the workplace;
(2) The grantee's policy of maintaining a drug-free workplace;
(3) Any available drug counseling, rehabilitation, and employee assistance programs, and
(4) The penalties that may be imposed upon employees for drug abuse violations in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will -

(1) Abide by the terms of the statement; and
(2) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than
five days after such conviction;

(e) Notifying the agency within ten days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction;

(f) Taking one of the following actions, within 30 days of receiving notice under subparagraph (d)(2) , with respect to any employee who is so convicted -

(1) Taking appropriate personnel action against such an employee, up to and including termination; or
(2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved
for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraph (a), (b), (c), (e), and (f).

Organization Name PR/Award Number or Project Name

Name and Title of Authorized Representative

Signature Date

ED 80-0004

Appendix D

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements.

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000, and not more than $100,000 for each such failure.

_____

Signature and Date

_____

Name and Title of Authorized Representative

_____

Organization Name

Proposal Cover Sheet
NASA Research Announcement 97-MTPE-XX

Proposal No. _____ (Leave Blank for NASA Use)

Title: _____

Principal Investigator:

Name: _____

Department:_____

Institution: _____

Street/PO Box: _____

City: _____ State: _____ Zip: _____

Country: _____ E-mail: _____

Telephone: _____ Fax: _____

Co-Investigators:

Name	Institution	Telephone
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Budget:

1st Year: _____ 2nd Year: _____ 3rd Year: _____

Total: _____

Authorizing Official: _____ _____
(Name) (Institution)